

**4<sup>th</sup> HEPATITIS C**  
TECHNICAL ADVISORY  
GROUP  
**TAG Meeting**

**COST-EFFECTIVENESS STUDY  
OF THE HCV ELIMINATION PROGRAM IN  
GEORGIA  
(PRELIMINARY RESULTS)**

Irine Tskhomelidze  
CDC South Caucasus Office

# Outline of Presentation

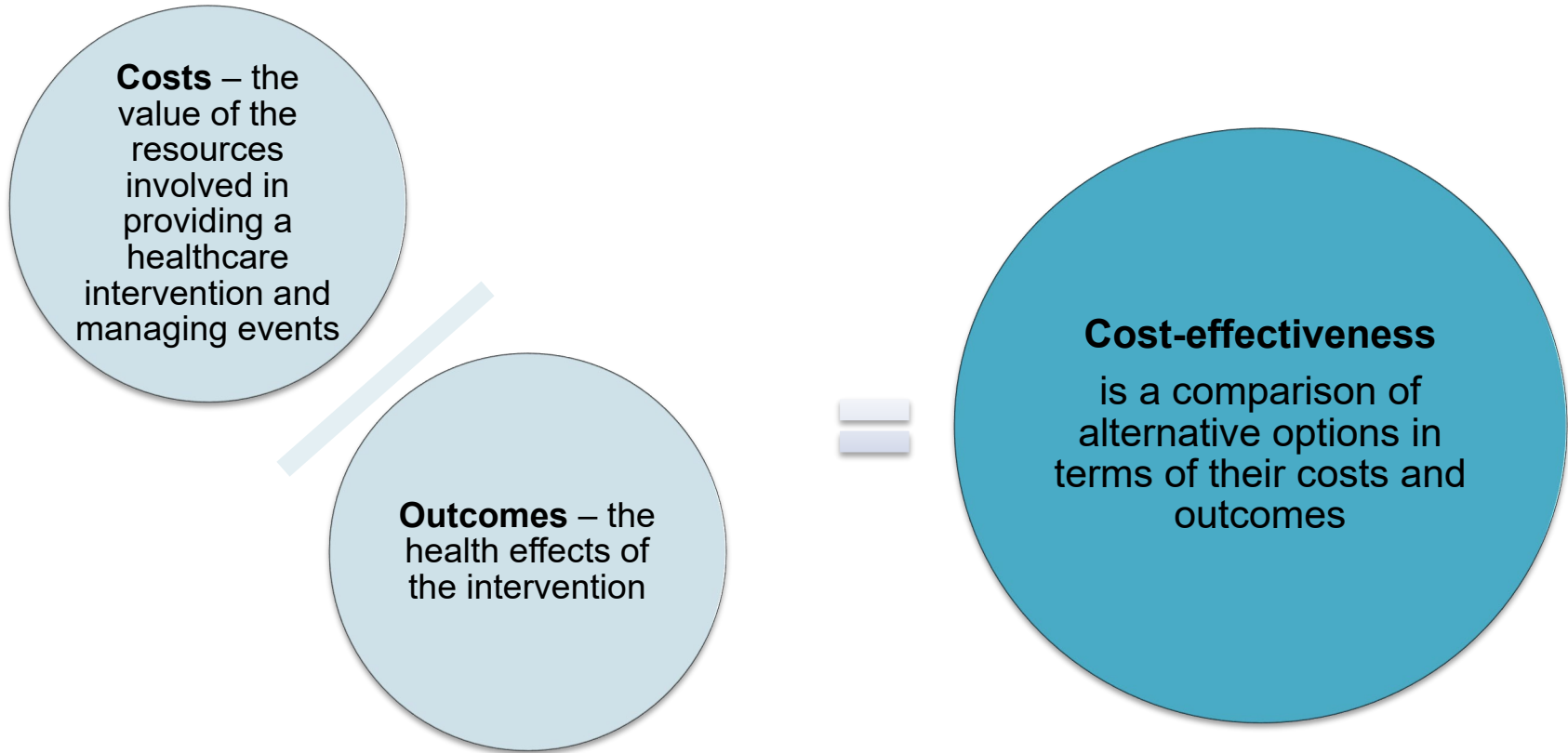
- **Introduction**

- ✓ Why Cost-effectiveness?
- ✓ Goals and Objectives
- ✓ Costs, Cost data sources
- ✓ Calculation Steps

- **Results**

- ✓ Cost tables
- ✓ Strengths and Limitations
- ✓ Next steps

# Cost-effectiveness analysis



# Background



GOG along with Support from international organizations invested and committed government efforts to build sustainable systems for HCV screening and treatment though there are many diseases to be tackled.

*Georgia is a leader in HCV elimination but there are some challenges.*



## **Priorities for Action**

Cost-effectiveness studies

# Goal and objectives

- Our Goal was to evaluate the cost-effectiveness in terms of cost/QALY of screening and treatment in the HCV elimination program in Georgia from the perspective of the Ministry of Health (primary payer) and the patient, compared to a base case of no elimination program;
- To fully estimate the cost effectiveness of the HCV elimination program in Georgia, health care costs that would have occurred without the program were estimated.

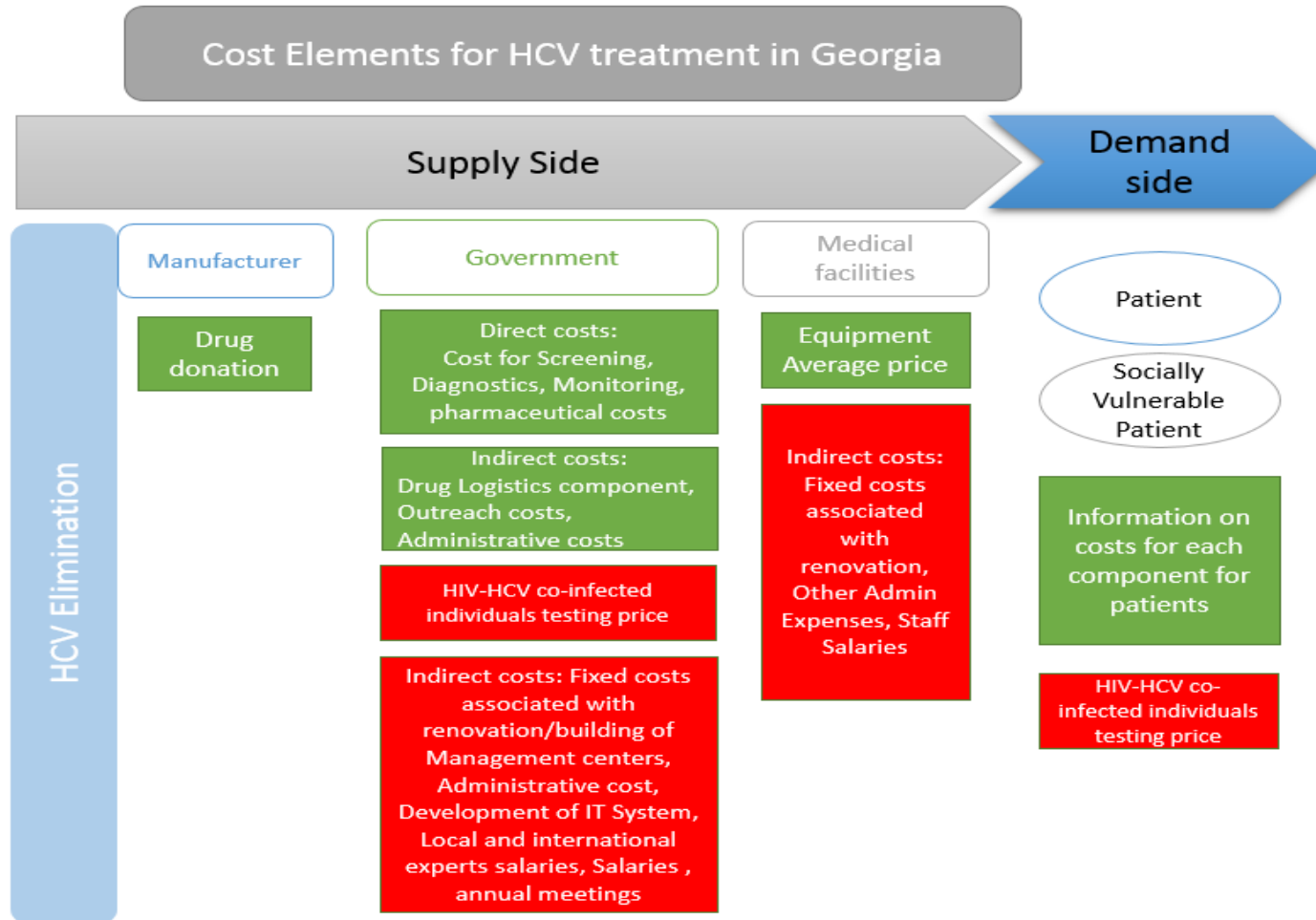
*\*Timeframe April 2015 –November 2017  
Presenting 2016-2017*

# Goal and objectives (continued)

Sub group questions to Determine cost-effectiveness of:

- **Overall**– what is cost-effectiveness of the whole program for that time?
- **Regimen** – are Harvoni-based regimens more cost-effective than Sof-based regimens?
- **Screening yield** –screening and treatment in certain subgroups of patients compared to no treatment?
- **Subgroup** –Georgia Harm Reduction Network

# Costs\*

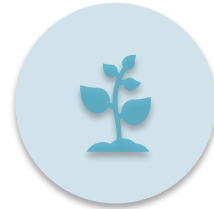


*\*The Costs within HCV elimination program were represented from out-of-pocket and government expenditures, also Drug donation*

# Cost Data Sources



**Screening (NCDC, calculation)**



**Diagnostics (MoLHSA, SSA Financial Module)**



**Information on pharmaceutical costs (MoLHSA, Elim C)**



**Indirect costs (NCDC, MoLHSA, Fixed strategy)**



**Medical costs**  
Management of Infectious Diseases” state program database, ICD 10 B18.2



Cost

Calculation

steps

*% of socially vulnerable was average from overall cascade of care;*

- a) Databases: raw data on Claimed cases*
- b) Average for each reimbursed case by GOG*
- c) Estimates of patient's out of pocket costs 2 scenarios (Socially vulnerable/others)*
- d) Combination of diagnostic and monitoring studies*
- e) Average weighted for each component/scenario*

# Calculation steps (II)

$$\text{Unit cost/year} = \frac{\text{Average cost P1} * \text{Num of P1 cases} + \text{Average cost P2} * \text{Num of P2 cases}}{\text{Num P1 cases} + \text{Num P2 cases}}$$

*P1 = Regular co-payment*  
*P2 = Socially Vulnerable*

**Total Cost for treatment/per patient per year**

$$= \frac{\text{Screening Unit cost} * \text{Screening Num} + \text{RNA unit cost} * \text{Reimbursed case Num} + \text{Fib scenario Unit cost} * \text{NUM}}{\text{NUM of patients initiated treatment within given Period}}$$

**Regimens**

$$= \frac{\text{HARVONI} + \text{RIBA 12 week Price} * \text{Num of patients Same regimen} + \text{Harvoni 12 week} * \text{Num} - \dots}{\text{Num of patients with Harvoni Regimen}}$$

# Preliminary Results

# Average Unit cost per patient/year 2016-2017

Year	Screening		HCV RNA Confirmatory testing			All Diagnostics - HCV RNA Confirmatory testing (before the treatment)			Monitoring			Treatment Cost (RBV, INF total Various Regimens)		% of Social ly Vulne rable
	G	HCP	G	P	Total	G	P	Total	G	P	Total	G	P	%
<b>2016</b>	0.5	0.6	14	27.9	41.9	38.16	86.02	124.2	28.6	75.6	104.2	49.2	0	9.3
<b>2017</b>	0.5	0.6	14.6	28	42.6	42.22	132.1	174.3	8.2	19.2	27.4	<b>32.7</b>	0	12.3

## Exchange rate history

2015 2.39

2016 2.62

2017 2.58

\*Data source National Bank of Georgia

G- Screening Paid by Government  
HCP- Screening Paid by HCP (Other)  
G- Government  
P-Patient

# Average Unit cost per patient/year 2016-2017

Year	Screening		HCV RNA Confirmatory testing			All Diagnostics - HCV RNA Confirmatory testing (before the treatment)			Monitoring			Treatment Cost (RBV, INF total Various Regimens)		% of Social ly Vulne rable
	G	HCP	G	P	Total	G	P	Total	G	P	Total	G	P	%
2016	0.5	0.6	14	27.9	41.9	38.16	86.02	124.2	28.6	75.6	104.2	49.2	0	9.3
2017	0.5	0.6	14.6	28	42.6	42.22	132.1	174.3	8.2	19.2	27.4	<b>32.7</b>	0	12.3

## Exchange rate history

2015 2.39

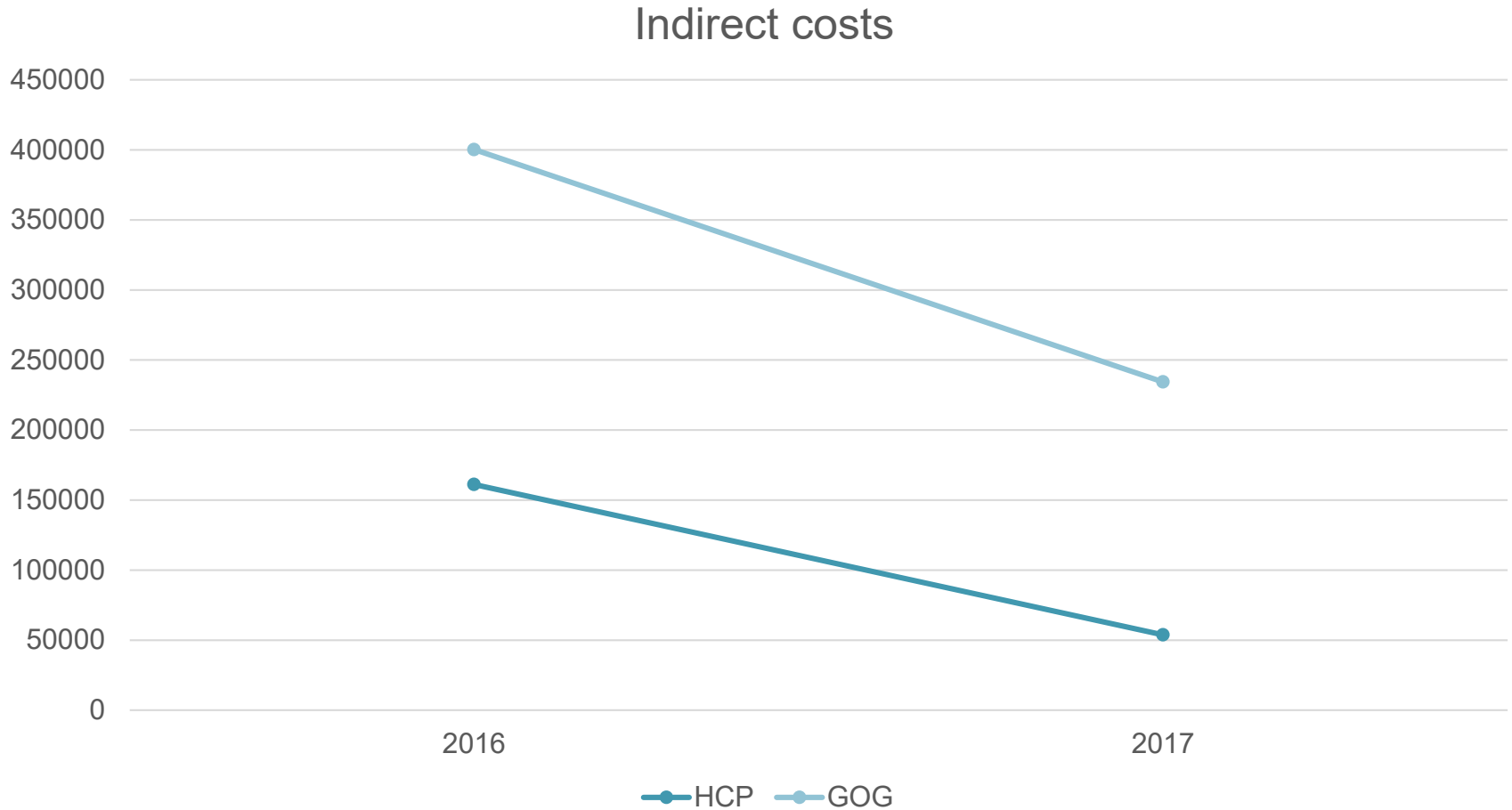
2016 2.62

2017 2.58

\*Data source National Bank of Georgia

G- Screening Paid by Government  
HCP- Screening Paid by HCP (Other)  
G- Government  
P-Patient

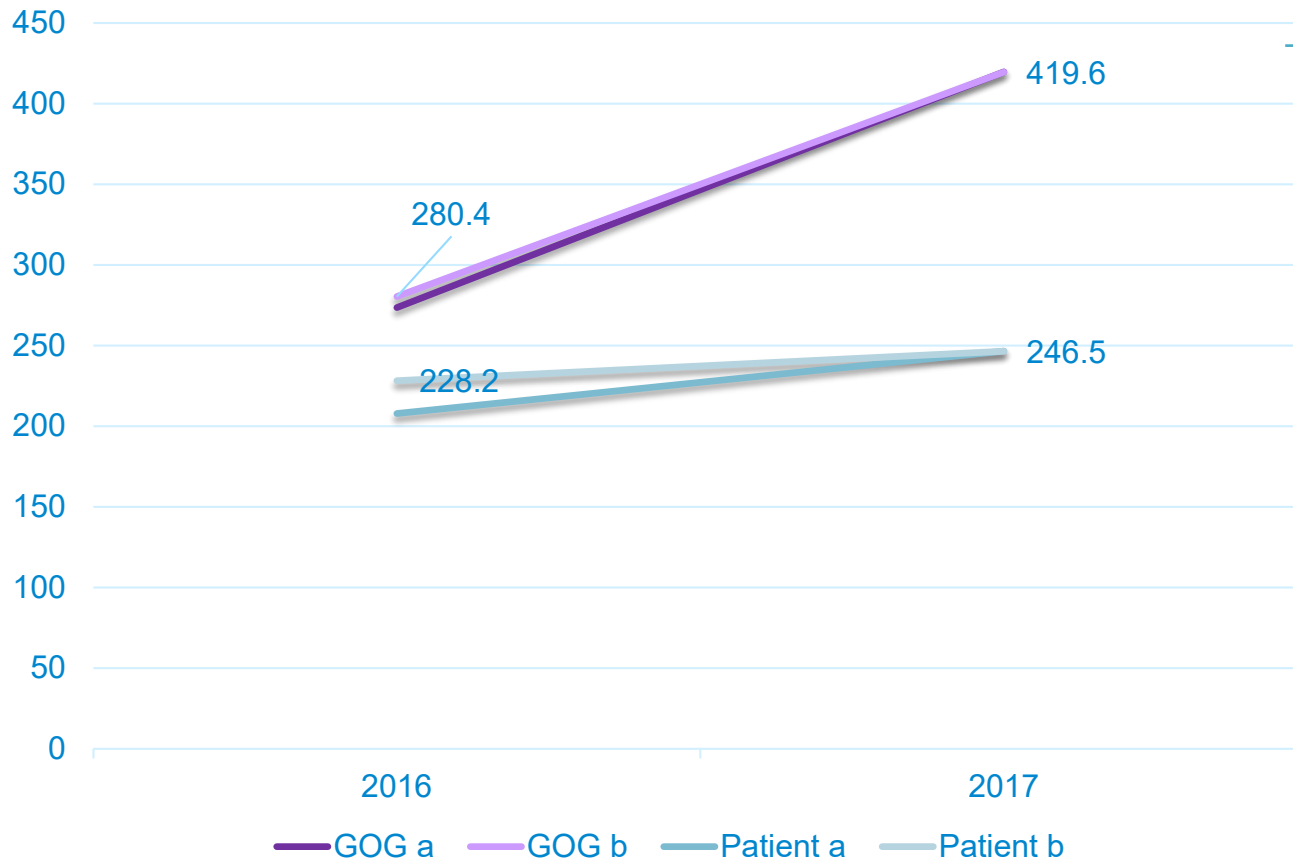
# Indirect costs 2016-2017 (Outreach, Drug Logistics, Equipment)



# Total treatment cost by various scenarios 2016-2017

Num of patients by years	Num
2016	<b>21656</b>
2017	<b>13889</b>

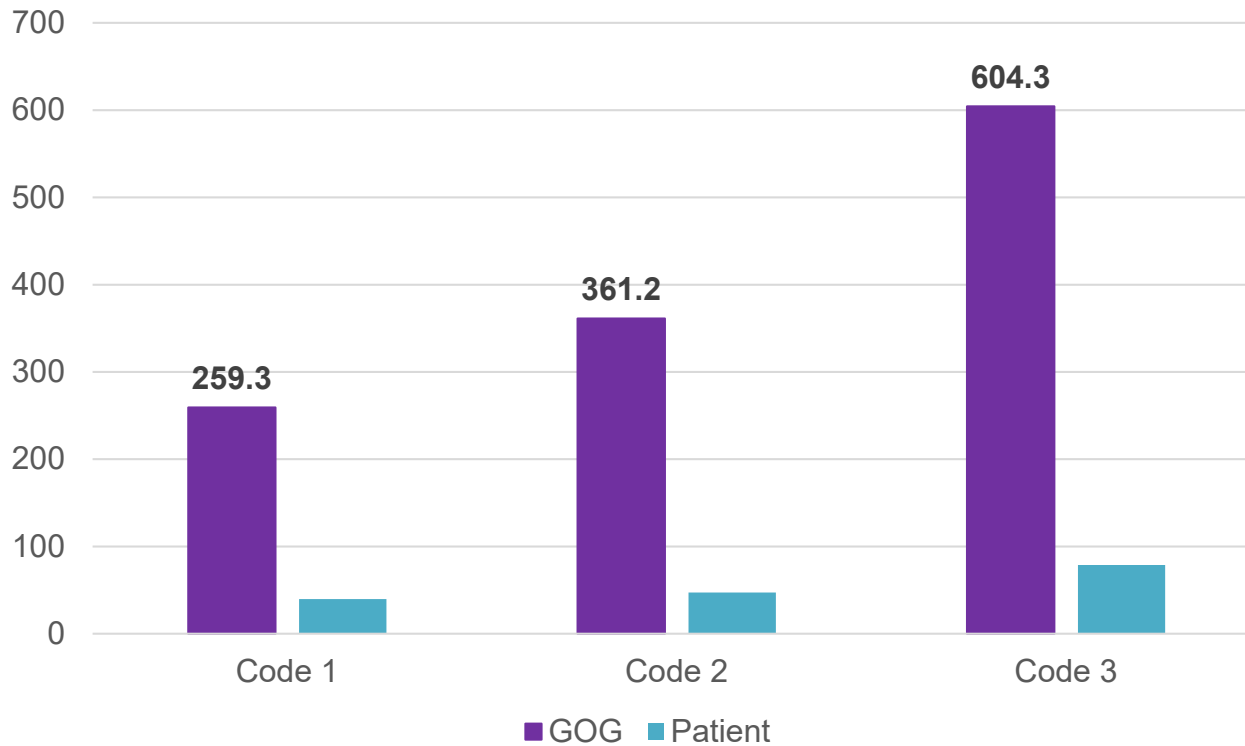
## Treatment Costs



# Vertical program – Average cost of care by year and by category 2015-2016

Average prices for vertical program 2015-2016

*Code-1 pre-cirrhosis*  
*Code-2 cirrhosis*  
*Code-3 decompensated cirrhosis*





# Strengths and Limitations

## Strengths

- First cost effectiveness study of HCV elimination in Georgia
- Detailed Cost data of HCV elimination diagnostics, monitoring

## Limitations

- Cost data for HIV co-infected patients
- Cost data Prison, Treatment cost data
- Second round of diagnostics for treatment
- NO data available on additional costs
  - IT
  - Indirect cost
  - Salaries
  - Conferences etc.

# Next steps

- ICER and next steps – are based on modelled results from the impact projections we've done
- We will estimate Quality of life for different disease states (and QALYs) using EQ5D and utility measures
- **Cost-effectiveness – ICER tables**
- **Pilots on improving screening linkage**

# Acknowledgements

- Ministry of Internally Displaced Persons from the Occupied Territories, Labour, Health and Social Affairs of Georgia
- National Center for Disease Control and Public Health
- Centers for Disease Control and Prevention
- University of Bristol, Josephine Walker, Peter Vickerman
- HCV service provider Clinics
- LIFER



**Thank you for Attention!  
Questions?**

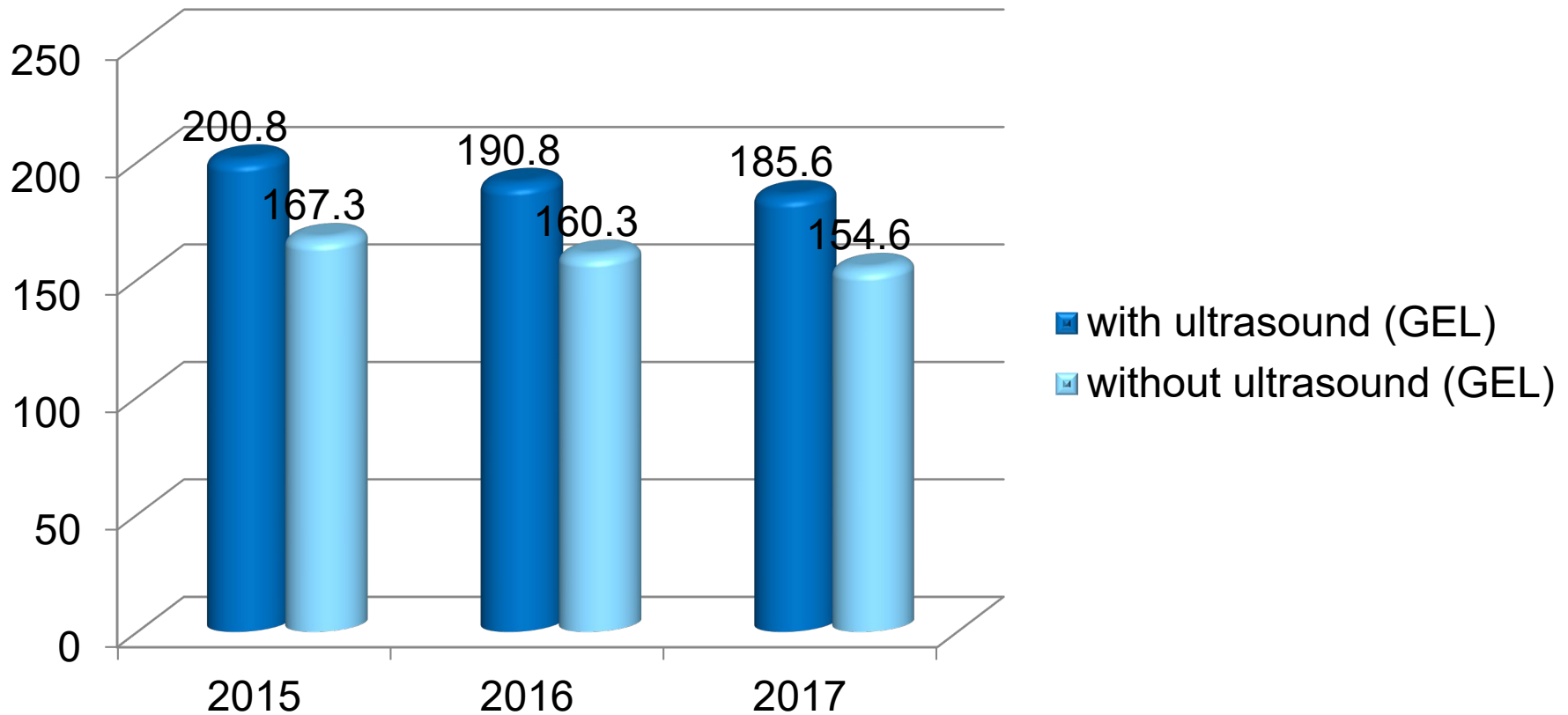
# Next steps, Cost-effectiveness – ICER tables

## Overall , By regimen, Subgroup GHRN

	Cost (USD) per capita		QALY per capita		ICER
<b>Strategy</b>	Total	Incremental	Total	Incremental	Cost/QALY
No treatment					
Overall program elimination					

# Diagnostic cost

## Diagnostic before treatment (except HCV RNA Confirmatory testing)



# Total treatment cost by various scenarios

Price for the treatment GEL	2015	2016	2017
GOG Share FIB scenario	1067.596057	716.7314671	1082.881408
GOG Share Elastography scenario	1001.523428	734.5394336	1082.489173
Patient share FIB scenario	409.5636436	544.7533974	636.2858265
Patient Share Elastography scenario	432.5139552	597.7828686	636.019124
Num of patients initiated the treatment	5938	21656	13889

Chronic HCV ICD 10 B18.2 (1) Chronic viral hepatitis with highly active pathologic process, (2) Chronic viral hepatitis with cirrhosis, (3) Chronic viral hepatitis with cirrhosis, ascites and / or encephalopathy, and / or hepatorenal syndrome							Average hosp/per year
Total cases (1)	Amount to be paid by the state program	Average by Gov	Patient Co-payment	Average by Patient per code	Reporting year	Highly active pathologic process	
54	35214.87	652.1	5561.53	109.04	2015	1.02	
49	31717.41	647.2	4407.43	89.9	2016	1.02	
Total cases (2)	Amount to be paid by the state program	Average by Gov	Patient Co-payment	Average by Patient per code	Reporting year	With cirrhosis	
92	85276.12	926.9	8526.79	93.7	2015	1.05	
82	72398.36	882.9	11739.74	143.1	2016	1.05	
Total cases (3)	Amount to be paid by the state program	Average by Gov	Patient Co-payment	Average by Patient per code	Reporting year	Cirrhosis, ascites AND/OR encephalopathy, AND/OR hepatorenal syndrome	
705	1124927.9	1597.1	112112.97	157.96	2015	1.14	